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ILLINOIS STATE BOARD OF HEALTH.

PREVENTABLE-DISEASE CIRCULARS.

No. 2.--DIPHTHERIA.

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Diphtheria is a contagious disease—that is, one capable of being conveyed from a person suffering with the disease to a healthy person. It is, therefore, preventable, and the success of efforts at prevention depends upon a knowledge of the modes by which it may be conveyed.

For practical purposes these are as follows:

I. By immediate contact with the exhalations, discharges, etc., from a diphtheritic patient.

II. By contact with such emanations through the medium of air and water.

The obvious deductions are, on the one hand, to destroy these emanations, or to render them harmless, as promptly as they are produced; and, on the other, to secure the utmost attainable purity of air and water. The specific instructions which follow have reference to these two modes of prevention, and should be carefully observed by every family in any community where Diphtheria makes its appearance.

Because Diphtheria finds the majority of its victims amongst children, there is not the same attention given to precautions against its spread as there is, for example, in the case of small-pox. And yet there is every reason to believe that—aside from the specific measure of vaccinal protection—the spread of Diphtheria may be as effectually controlled by a scrupulous observance of proper precautions.

A preventable disease which, not infrequently, causes a greater mortality than typhoid fever, small-pox, scarlet fever and measles combined; which, during 1880, caused 51.33 out of every 1000 deaths from all causes in the United States; and which, during the past year, 1882, caused nearly that proportion (51 out of every 1000,) in the State of Illinois—Diphtheria certainly demands the best efforts of all interested in its suppression; and this the more imperatively, since its treatment is, as yet, confessedly unsatisfactory.

DIPHTHERIA—ITS PREVENTION AND CONTROL.

I—ITS PREVENTION.

1. If one is subject to catarrh, or inflammatory affections of the throat, especial care should be paid to the condition of the general health and to the general hygienic surroundings. There is reason to believe that Diphtheria originates spontaneously in such persons when the system is debilitated from any cause.

2 During the existence of Diphtheria, avoid crowded gatherings in badly ventilated rooms, as in theatres, public halls, and even churches. This is of especial importance during cold weather.

3. Secure thorough ventilation and perfect cleanliness of nurseries, kinder-gartens, school-rooms and other places where children are cared for. Parents should make it their personal business to secure these in the home and nursery; and to see that those in charge of schools, etc., are also mindful of these important matters. Children are more subject to Diphtheria than adults, and the disease is more fatal with them; hence the necessity of these precautions on their behalf.

4. During the existence of a case of Diphtheria in the neighborhood do not neglect any soreness of the throat, however slight, until assured of its harmless nature by the family physician.

5. Unless absolutely necessary, do not come in contact with, or inhale the breath of, one sick with sore throat. Avoid kissing, or eating and drinking in common with such sick person.

6. Diphtheria has so often appeared where uncleanly conditions have prevailed, when it could not be traced to continuous propagation by contagion, that its relation to filth as a cause may be assumed for sanitary purposes.

It is immaterial whether the filth exists in visible and disgusting forms, such as the garbage heap, the cess-pool or the privy vault, or in the invisible and possibly inodorous gases from an illy-constructed sewer; from decaying vegetables in the cellar, or in the poisonous exhalations from the human breath and body in unventilated rooms. All these undoubted causes of ill-health should be at once abated.

7. Because of the fact stated in No. 3, an adult may venture, when necessary, to come in contact with a case of Diphtheria; but no child should ever be so exposed, either directly or indirectly. Adults who are compelled to visit such cases should take the precaution to bathe and change clothing before going near a child. Children should be prevented from entering the water-closet or privy into which Diphtheria discharges are thrown, even after disinfection. In short, they should be removed at once and definitely from any possibility of contagion during the existence of a case.

8. Cats, dogs, cows, swine, and some other of the lower animals are known to be subject to Diphtheria, and fatal cases among human beings have been contracted from them. Avoid, therefore, having anything to do with a cat, dog, cow, hog or other animal suffering from any throat disease, until it is known not to be Diphtheria.

9. Outbreaks of Diphtheria have been traced to the carriage of the contagion by the wind. Therefore, it is advisable to close the windows and doors, and avoid as much as possible the side of a house towards a known infected house or locality, especially during the prevalence of high winds from that direction.

10. There are no specifics or antidotes for Diphtheria. The resort to such can do no possible good, and may lead to harm.

II.—ITS CONTROL.

1. Diphtheria is, at times, as virulent and contagious as small-pox. Like small-pox, too, it is not always easy to detect its character during the early stages. Therefore, when one has sore throat, foul breath, with some fever—and, especially, if there is Diphtheria in the neighborhood—the sufferer should be at once separated from all other persons, except the necessary attendants, until it is ascertained whether the disease be Diphtheria (or other contagious disease.) If this prove to be the case, the following precautions should be at once adopted. These are, substantially, the same as already recommended by the STATE BOARD OF HEALTH, in the Circular on Small-Pox:

The Sick-Room.—The room selected for the sick should be large, easily ventilated, and as far from the living and sleeping-rooms of other members of the family as it is practicable to have it. All ornaments, carpets, drapery, and articles not absolutely needed in the room should be removed. A free circulation of air from without should be admitted both by night and day—there is no better disinfectant than pure air. Place the bed as near as possible in the middle of the room; but care should, of course, be taken to keep the patient out of draughts

If the room connects with others which must be occupied, lock all but one door for entrance and exit, and fasten to the door frames—top, bottom and sides—sheets of cheap cotton cloth, kept wet with *thymol water*, (see page 8,) or chloride of zinc solution—two drachms chloride zinc to a half gallon of water. Over the door to be used, the sheet must not be tacked at the bottom nor along the full length of the lock-side of the frame, but about five feet may be left free to be pushed aside; this sheet, however, must be long enough to allow ten or twelve inches to lie in folds on the floor, and must, also, be kept wet with the disinfectant.

Precautions in the Sick-Room.—All discharges from the nose and mouth of the patient should be received on rags and immediately burned. Night-vessels should be kept supplied with a quart or so of the *Copperas Disinfectant* (see page 8) into which all discharges should be received. All spoons, dishes, etc., used or taken from the sick-room, should be put in boiling water at once.

A pail or tub of the *Zinc Disinfectant* (see page 8) should be kept in the sick-room, and into this all clothing, blankets, sheets, towels, etc., used about the patient or in the room, should be dropped immediately after use, and before being removed from the room. They should then be well boiled as soon as practicable.

Attendants.—Not more than two persons—one of them a skillful, professional nurse, if possible—should be employed in the sick-room, and their intercourse with other members of the family should be as much restricted as possible.

In the event that it becomes necessary for an attendant to go away from the house a complete change of clothing should be made, using such as has not been exposed to infection; the hands, face and hair should be washed in thymol water, or chloride of zinc solution

Miscellaneous.—No inmate of the house, during the continuance of the disease, should venture into any public conveyance, or assemblage, or crowded building, such as a church or school; nor, after its termination, until permission is given by the health authorities.

Letters must not be sent from the patient, and all mail matter from the house should first be subjected to a dry heat of 250-260 deg. F.

Domestic animals, dogs, cats, etc., should not be allowed to enter the room of the patient, or, better still, should be excluded from the house.

During the entire illness the privy should be thoroughly disinfected with the *Copperas Disinfectant*, three to five gallons of which should be thrown into the vault every three or four days. Water-closets should be disinfected by pouring a quart or so of this disinfectant into the receiver after each use.

Care after Recovery.—Recent authorities pronounce Diphtheria patients dangerous, and liable to communicate the disease by their breath and excretions or by contact with their persons, for a period of forty days from the beginning of the disease. In any event such a person should not be permitted to associate with others, nor to attend school, church or any public assembly until the throat and any sores which have been on the lips or nose are entirely healed; nor until, in the judgment of the attending physician (who should certify to that effect,) or of the health officer, such association will not endanger others. Care should be taken that the clothing worn by convalescents

has not been exposed to the infection, or has been thoroughly disinfected. The garments worn at the time of being taken ill should be cared for at once, lest others contract the disease through handling them.

2. Cases of Diphtheria should be promptly reported to the proper health authority, either by the attending physicians or by the householders. Plain and distinct notices, in the form of placards, should be placed upon the house or premises where there is a case of Diphtheria, and children, especially, should not be allowed to enter such house. Notice should also be given to all public schools, of the locality of any house in which there is Diphtheria, and the scholars should be cautioned against visiting or playing on the infected premises.

3. Immediately upon receipt of notice of the existence of a case of Diphtheria, the health officer should visit the locality and secure prompt compliance with the precautions above set forth. He should see that the proper placards are duly posted; should notify the schools; take charge of funerals of those dying of this disease; superintend the disinfection of rooms, clothing and premises; and, finally, give official certificates of recovery, and of freedom from liability to communicate the disease to others. Until these latter are issued a rigid system of isolation or quarantine should be maintained with regard to an infected house and its contents—persons and things.

Where there is no health officer, the attending physician should see that the above precautions are carried out.

4. In the event of death, the clothing in which the body is attired should be sprinkled with thymol water, the body wrapped in a disinfectant cerecloth (a sheet thoroughly soaked in the *Zinc Disinfectant, double strength,*) and placed in an air-tight coffin, *which is to remain in the sick-room until removed for burial* No public funeral should be allowed either at the house or church, and no more persons should be permitted to go to the cemetery than are necessary to inter the corpse.

5. After recovery or death all articles worn by, or that have come in contact with the patient, together with the room and all its contents, should be thoroughly disinfected by burning sulphur. To do this, have all windows, fire-places, flues, key-holes, doors and other openings securely closed by strips or sheets of paper pasted over them. Then place on the hearth or stove, or on bricks set in a wash-tub containing an inch or so of water, an iron vessel of live coals, upon which throw three or four pounds of sulphur. All articles in the room and others of every description that have been exposed to infection, which cannot be washed or subjected to dry heat, and are yet too valuable to be burned, must be spread out on chairs or racks; mattresses or spring-beds set up so as to have both surfaces exposed; window shades and curtains laid out at full length, and every effort made to secure thorough exposure to the sulphur fumes. The room should then be kept tightly closed for twenty-four hours.

After this fumigation—which it will do no harm to repeat—the floor and wood-work should be washed with soap and hot water, the walls and ceiling whitewashed, or, if papered, the paper should be removed. The articles which have been subjected to fumigation should be exposed for several days to sunshine and fresh air. If the carpet has unavoidably been allowed to remain on the floor during the illness, it should not be removed until after the fumigation; but must then be taken up, beaten and shaken in the open air, and allowed to remain out of doors for a week or more. If not too valuable, it should be destroyed; but, whenever practicable, it should be removed from the room at the beginning of the illness.

After the above treatment has been thoroughly enforced, the doors and windows of the room should be kept open as much as possible for a week or two. Where houses are isolated articles may be exposed out of doors. The entire contents of the house should be subjected to the greatest care, and when there is any doubt as to the safety of an article *it should be destroyed*

All this work should be done—both the disinfection and the destruction of property—under the direct supervision of the local authorities.

6. Such articles of clothing, bedding, etc., as can be washed, should first be treated by dipping in the *Zinc Disinfectant;* they should then be immediately and thoroughly boiled. The ticking of beds and pillows used by the patient should be treated in the same manner, and the contents, if hair or feathers, should be thoroughly baked in an oven If this cannot be done, they should be destroyed by fire, as should, in any event, all straw, husk, moss, or "excelsior" filling. The clothing of nurses should be thoroughly fumigated and cleaned before it is taken from the house, or, better still, burned, if feasible.

Best Disinfectants.

Sunlight, fresh air, soap and water, thorough cleanliness—for general use.

For special purposes the following are the most efficient, the simplest and the cheapest.

I.—Copperas Disinfectant.

Sulphate of iron (copperas).....one and one-half pounds.
Water.....one gallon.

A convenient way to prepare this is to suspend a basket containing about sixty pounds of copperas in a barrel of water. The solution should be frequently and liberally used in cellars, privies, water-closets, gutters, sewers, cess-pools, yards, stables, etc.

II.—Sulphur Disinfectant.

Roll sulphur (brimstone).....two pounds.

To a room ten feet square, and in the same proportion for larger rooms. See *Rule* 5 for mode of use.

III.—Zinc Disinfectant.

Sulphate of zinc (white vitriol).....one and one-half pounds.
Common salt.....three-quarters of a pound.
Water.....six gallons.

For application and modes of use see *Rules* 1, 4 and 6 of Section II.

IV.—Thymol Water.

Made by adding one tablespoonful *Spirits of Thymol* to half a gallon of water. *Spirits of Thymol* is composed of—

Thymol.....one ounce.
Alcohol, 85 ₱ ct.....three ounces.

May be used for all the disinfectant purposes of carbolic acid; it is quite as efficient and has an agreeable odor. See *Rules* 1 and 4 for application and uses. Where thymol is not available, chloride of zinc solution may be used—half an ounce of chloride of zinc to one gallon of water.

THIS CIRCULAR SHOULD BE PRESERVED FOR REFERENCE.